

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the captioned application.

Listing of Claims:

Claims 1 – 38. (Cancelled)

Claim 39. (Currently amended) A seismic survey network comprising a plurality of data processing modules and a central recording unit; a first portion of said data processing modules including seismic data acquisition modules having a first clock means and an assisted global positioning system (GPS) receiver; said central recording unit having a second clock means and a master global positioning system (GPS) receiver, each of said data acquisition modules having one or more seismic sensors with respective specific identities operatively connected thereto for transmission of seismic data to the respective data acquisition module; said survey network further comprising a communication network connected among said data processing modules and said central recording unit linking said master GPS receiver and said assisted GPS receivers, said master GPS receiver transmitting to said assisted GPS receiver over said communication network satellite tracking assistance data and current best-estimate data of said assisted GPS receiver location; said assisted GPS receiver transmitting to said master GPS receiver for processing and storage, over said communication network, satellite [[tracking]] data collected by said assisted GPS receiver.

Claim 40. (Previously presented) A seismic survey network as described by claim 39 wherein said data acquisition modules include operational programs to receive and re-transmit digital seismic data along said communication network toward said central recording unit in the form of seismic data packets, each seismic data packet being time stamped with the time of the first clock means respective to the particular data acquisition module source of said seismic data packet when said seismic data is received by said particular data acquisition module from the seismic sensors connected thereto.

Claim 41. (Previously presented) A seismic survey network as described by claim 40 wherein the time of said first clock means is synchronized to GPS reference time by said assisted GPS receiver.

Claim 42. (Previously presented) A seismic survey network as described by claim 39 wherein a second portion of said data processing modules are base line modules.

Claim 43. (Previously presented) A seismic survey network as described by claim 42 wherein a third portion of said data processing modules are line tap modules.

Claim 44. (Currently amended) A seismic survey network as described by claim 39 wherein said central recording unit transmits second clock synchronization signals corresponding to the time of said second clock means for receipt and re-transmission along said communication network.

Claim 45. (Currently amended) A seismic survey network as described by claim 40 wherein the time of said second clock means is synchronized to GPS satellite reference time by said master GPS receiver and said [[first]] data acquisition modules comprise means responsive to a second clock synchronization signal to coordinate the time value of said first clock means to the time value of said second clock means.

Claim 46. (Previously presented) A seismic survey network as described by claim 39 wherein said communication network comprises a plurality of data transmission increments serially linking respective data acquisition modules, other data processing modules and said central recording unit, each of said increments having a predetermined data propagation time interval, the data propagation time intervals of data transmission increments adjacent each module and unit being programmed in the respective module and unit as a reference value for synchronizing the time reported by a first clock means to the time reported by said second clock means.

Claim 47. (Previously presented) A seismic survey network as described by claim 40 wherein the specific identity of a seismic sensor source of a seismic data packet is implicitly distinguished by the sequential reception order of said seismic data packet by said central recording unit.

Claims 48 - 50. (Cancelled).

Claim 51. (Previously presented) A seismic survey network according to Claim 39 wherein said data acquisition and other data processing modules are equipped with means for receiving synchronization signals emanating from said central recording unit and determining time according to said second clock means, for retransmitting said synchronization signals and for annotating the second clock time on synchronization signals retransmitted by said modules.

Claim 52. (Previously presented) A seismic survey network as described by claim 39 wherein said second clock means is a master clock of greater precision than said first clock means.

Claim 53. (Cancelled).

Claim 54. (Previously presented) A seismic survey network as described by claim 52 wherein a second portion of said data processing modules includes a third clock means of less precision than said master clock and of greater precision than said first clock means.

Claim 55. (Cancelled)

Claim 56. (Currently amended) A seismic survey network as described by claim 39 wherein said master GPS receiver is utilized to communicate respective global-positioning system information to respective [[said]] data acquisition modules over said seismic survey network and said assisted GPS receivers utilize said information to improve the accuracy of their computation of current time.

Claim 57. (Previously presented) A seismic survey network as described by claim 39 wherein said master GPS receiver receives global-positioning-system information from said data acquisition modules over said seismic survey network, said information being utilized by said master GPS receiver to improve the accuracy of its computation of the positions of said data acquisition modules.

Claim 58. (Previously presented) A seismic survey network as described by claim 57 wherein said information comprises accumulated received global-positioning-system signals and related data.

Claim 59. (Previously presented) A seismic survey network as described by claim 57 wherein position coordinates of respective data acquisition modules computed by said master GPS receiver are communicated to said respective data acquisition modules by data packet communication over said communication network.

Claim 60. (Previously presented) A seismic survey network as described by claim 59 wherein said assisted GPS receivers utilize said position coordinates to compute a best estimate of time utilizing signals they receive from one or more global-positioning-system satellites.

Claim 61. (Previously presented) A seismic survey network as described by claim 39 wherein said master GPS receiver communicates information to said data acquisition modules over said communication network, said information being utilized by said assisted GPS receivers to improve their satellite tracking processes.

Claim 62. (Previously presented) A seismic survey network as described by claim 61 wherein said information includes the current and future locations and identifications of available satellites.

Claim 63. (Previously presented) A seismic survey network as described by claim 39 wherein said assisted GPS receiver receives assistance in computing its position or time from said master GPS receiver, said assistance being enabled by data packet communication over said communication network.

Claim 64. (Previously presented) A seismic survey network as described by claim 39 wherein said master GPS receiver communicates global-positioning-system information to said data acquisition module over said communication network, said information being utilized by said assisted GPS receiver to improve the accuracy of its computation of its own position.

Claim 65. (Previously presented) A seismic survey network as described by claim 39 wherein said assisted GPS receiver relies on network-communicated assistance from said master GPS receiver to determine accurate time and/or position coordinates.

Claim 66. (Currently amended) A seismic survey network comprising a plurality of data processing modules and a central recording unit; a first portion of said data processing modules including seismic data acquisition modules having a first clock means and an assisted global positioning system (GPS) receiver; said central recording unit having a second clock means and a master global positioning system (GPS) receiver; each of said data acquisition modules having one or more seismic sensors with respective specific identities operatively connected thereto for transmission of seismic data to the respective data acquisition module; a communication network connected among said data processing modules and said central recording unit linking said master GPS receiver and said assisted GPS receivers, said master GPS receiver transmitting to said assisted GPS receiver over said communication network satellite tracking assistance data and current best-estimate data of said assisted GPS receiver location; said assisted GPS receiver transmitting to said master GPS receiver for processing and storage, over said communication network, satellite [[tracking]] data collected by said assisted GPS receiver, said data acquisition modules having operational programs to convert instants of seismic data values at selected time intervals to signal transmissions in the form of digital seismic data packets that are respectively distinguished by the time of the first clock means at the instant that respective seismic data is received by a particular data acquisition module; seismic data packets generated by said particular data acquisition module being transmitted along said communication network for receipt and re-transmission by at least one other data processing module prior to receipt by said central recording unit, said central recording unit having means to transmit master clock synchronization signals to said other data processing module and said other data processing module having means for re-transmission of said master clock synchronization signals along said communication network in a transmission direction opposite from said seismic data packets.